

National Fire Plan

Invasive Species

Wyoming

2003



An invasion is taking place in the Bighorn Basin of Wyoming. A foreign predator is crowding out native species. The culprit? Salt cedar, also known as Tamarisk.

The ornamental shrub doesn't look like your typical invasive plant. Growing up to 20 feet tall with feathery green branches and hundreds of small pink flowers, salt cedar has been an ornamental favorite for years. The plants grow incredibly thick and literally prevent anything else from growing.

Salt cedar consumes huge amounts of water, and that's a problem in the arid west. One large plant can use 200 gallons of water per day. One study in the southwest estimated that salt cedar could consume 46 million gallons of water per acre per year. The roots of the plant go very deep, so they can reach the water table.

Not only does salt cedar use a lot of water, it actually changes the soil composition.

"Salt cedar accumulates large quantities of salt from the soil and brings it to the foliage and then deposits it on the soil," said Alex Ogg, research scientist with the University of Wyoming Extension Service. "This gives it a competitive advantage, the ability to tolerate salt which most other plants can't."

It's this one-two punch of water consumption plus salt tolerance that is causing salt cedar to push out the native river-dwellers such as cottonwoods and willows.

"Salt cedar literally sucks all of the water out of the soil, depriving the cottonwoods," said BLM's Steve Christy. "Soon salt cedar will take over leaving only old cottonwood snags."

The Bighorn River is suffering this fate. As salt cedar grows and prospers, native grasses, shrubs and trees are dying. This affects the health of the entire ecosystem. Animals and birds which once thrived in the area are forced to look elsewhere for food and shelter. Salt cedar offers almost no food value.

The cost to landowners is also high. Cattle and horses don't graze on salt cedar and the plant prevents growth of other edible vegetation. A landowner can spend thousands of dollars trying to clear the fields.



Prescribed fire is one tool helping to eliminate the weed. However, fire alone can't solve the problem and must be used in conjunction with other methods.

In an effort to battle this predator, Christy began working with a local landowner, the University of Wyoming, and Washakie and Bighorn counties, along with other partners. From this, the Goose Island Riparian Restoration Project was established. Its goal is to protect and restore native riparian vegetation on tracts along the Bighorn River.

“There are about 170 acres of public land and 400 to 500 acres of private land involved,” Christy said.

The primary goals include protecting existing stands of cottonwood trees from wildfire hazards, reducing the density and frequency of weed invasion, increasing native vegetation on the site, and providing a demonstration and interpretive site for the future.

“Our goal is to restore the native cottonwood galleries,” said Christy. “It’s also a fuels management issue. If a fire gets started in the area, it goes crazy.”



Salt Cedar (*Tamarisk parviflora*) is an invasive plant that originated in Eurasia.

Salt cedar burns very well. Unfortunately, fire doesn’t kill the entire plant. It actually stimulates the underground buds. Mowing has the same effect. The plants can also be winter killed, but the roots live on.

Ogg said to effectively eliminate salt cedar, a combination of treatments is needed. “No one treatment will kill salt cedar. And if you don’t replace it with a desirable species, it will come back pretty fast.”

The project also has different goals for the partners. University of Wyoming scientists are interested in the research aspect. What combination of methods will eradicate salt cedar? What grasses can be reestablished? BLM is looking for a way to battle salt cedar on a larger scale by finding the most cost effective way to eliminate salt cedar, not only in the Bighorn Basin, but on all public lands.

In July 2000, the work began. A backhoe with a bucket and blade began clearing a 60-acre area. At the same time, university researchers established test plots.

“We’re doing study plots with different sprays. A spray may kill a plant, but the shoots come back from underground buds. We’ll need to treat it more than one year,” Ogg said.

“We’re trying to find a desirable species to compete against salt cedar. We have planted seeds of seven different grasses to test how well they will compete against salt cedar.” He explained that they’re also using different kinds of fertilizer to stimulate the grasses and forbs.

“On another test plot, a helicopter sprayed one of the salt cedar plots with Arsenal herbicide. It killed the salt cedar but it killed everything else as well,” Ogg said.

Using a web-blade mower is another technique that's being tested. The salt cedar is mowed down and the stumps are treated with chemicals at the same time.

In March 2001, the area was burned and a brush cutter cut down the burned skeletons. More test plots were seeded in April. About 60 cottonwoods were planted.

Things were looking good for the new plants and bad for the salt cedar when Mother Nature stepped in. By mid-July drought had hit the area hard. Only one third of the cottonwoods survived, but the salt cedar thrived and came back in droves. In the fall of 2001 willow, chokecherry, silver and buffalo berry were planted.

Christy said, "We've probably spent \$36,000 with in-kind contributions and \$50,000 total for 300 acres. Only 60 acres have actually been worked on and the problem isn't solved."

But despite the drought and resiliency of salt cedar, the work continues. Other groups are joining the battle. Boy Scouts put up protective wire fences around the cottonwoods to prevent beaver damage and the Audubon Society surveyed bird populations.

Biological control could be an option in the future. But finding bugs that will eat salt cedar and not desirable plants can take 1-15 years for approval. Currently, the Chinese Leaf Beetle looks promising. Beetles were released at a test site near Lovell, Wyoming. Biological control may be the answer in the long run.

The salt cedar problem is not one that can be solved alone. Only by working together can the Bighorn Basin be restored to its former glory.



Salt Cedar infestation along a stream.